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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/754,701	01/12/2004	Shunpei Yamazaki	07977-276002 / US4942D1	9100

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EXAMINER	
NGUYEN, DAO H	

ART UNIT	PAPER NUMBER
2818	

DATE MAILED: 11/04/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	10/754,701	YAMAZAKI ET AL.	
	Examiner	Art Unit	
	Dao H. Nguyen	2818	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *20 October 2005*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *40-95* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *40-95* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☐ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date *1005*.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____.
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

DETAILED ACTION

1. This Office Action is in response to the communications dated 10/20/2005.

Claims 40-95 are active in this application.

Claim(s) 1-39 have been cancelled.

New claim(s) 66-95 have been added.

Acknowledges

2. Receipt is acknowledged of the following items from the Applicant.

Information Disclosure Statement (IDS) filed on 10/20/2005. The references cited on the PTOL 1449 form have been considered.

Applicant is requested to cite any relevant prior art if being aware on form PTO-1449 in accordance with the guidelines set for in M.P.E.P. 609.

Remarks

3. Applicant's arguments filed on 10/20/2005 have been fully considered, but they are not persuasive.

First, as stated in the previous Office Action, and also asserted by Applicant in the remarks filed 10/20/2005, either high or low voltage(s) (in compare to the threshold voltage of the transistor) must be applied to the gate of the transistor to turn it on or off.

This means that (at a certain time,) the gate of the transistor must be applied with a signal having either a predetermined low voltage or a predetermined high voltage, regardless of it is an analog or a digital signal (it is not necessary to be a digital signal to have a predetermined high/low voltage(s) applied to the gate). Such input signal is/are certainly defined (and could be defined in a range of values). Applicant's argument that the claimed transistor must be digitally driven has no patentable weight because feature(s) of an invention not found in the claim(s) can be given no patentable weight in distinguishing the claimed invention over the prior art(s).

Second, In response to applicant's argument that one of ordinary skill in the art would have not been led to combine the teachings of Forrest and Arai, Applicant is notified that the test for obviousness is not whether the features of a secondary reference may be bodily incorporated into the structure of the primary reference; nor is it that the claimed invention must be expressly suggested in any one or all of the references. Rather, the test is what the combined teachings of the references would have suggested to those of ordinary skill in the art. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981). Here, it is clear that the combination of teachings of Forrest and Arai would have the benefit of providing means to control currents applied to the electroluminescent element (col. 1, lines 17-19 of Arai); hence, to control power applied across the electroluminescent element. Such modification would greatly improve the performance of the device of Forrest due to an ease in controlling the device.

For the above reasons, it is believed that the rejections should be sustained and is rewritten as follows in consideration of the amendments and/or additions of the claims.

Claim Rejections - 35 U.S.C. § 103

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

5. Claim(s) 40-95 is/are rejected under 35 U.S.C. 103 (a) as being unpatentable over U.S. Patent No. 6,310,360 to Forrest et al., in view of Arai et al., U.S. Patent No. 6,160,272.

Regarding claim 40, Forrest discloses a light emitting device comprising:

an electroluminescent element using a luminescent material (col. 9, line 18 to col. 11, line 18) in which electroluminescence is obtained by triplet excitation (col. 2, line 58 to col. 3, line 53; col. 5, lines 9-27: the ISC Agents convert all of the excitations/excitons into their triplet excitations/excitons, which do emit).

Forrest is silent about a device comprising a transistor electrically connected to the electroluminescent element, wherein signals each having one of predetermined two voltages are applied to a gate electrode of the transistor.

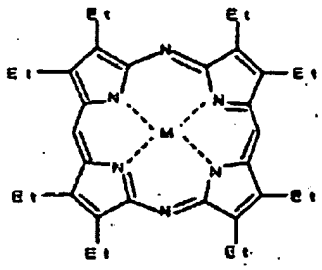
However, Arai discloses a light emitting device comprising an electroluminescent device electrically connected to a semiconductor component which is a thin film transistor comprising gate electrode 104 and source/drain regions 105/107 (col. 1, lines 5-20; col. 4, line 45 to col. 5, line 9). Technically, in operation, the thin film transistor of Arai is turned on or off by applying to its gate electrode a signal having either a high or a low voltage. Such voltages are definitely predetermined.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Forrest so that it would include a thin film transistor electrically connected to the electroluminescent element as that of Arai in order to control currents applied to the electroluminescent element (col. 1, lines 17-19 of Arai); hence, to control power applied across the electroluminescent element. Such modification would greatly improve the performance of the device of Forrest due to an ease in controlling the device.

Regarding claim 41, Forrest/Arai disclose the device wherein the transistor is a TFT. See col. 1, lines 5-20 of Arai.

Regarding claims 42-46, Forrest/Arai disclose the device comprising all claimed limitations. See col. 16, line 65 to col. 17, line 8 of Forrest.

Regarding claim 47, Forrest discloses a light emitting device comprising an electro luminescent element which includes a thin film including a luminescent material expressed by a following formula:



wherein Et represents etyl group; and M represents an element belonging to group 8 to 10 of a periodic table (col. 9, line 18 to col. 11, line 18; col. 17, line 11 to col. 19, line 19; and col. 20, lines 42-44).

Forrest is silent about a device comprising a transistor which electrically connected to the electroluminescent element, wherein signals each having one of predetermined two voltages are applied to a gate electrode of the transistor.

However, Arai discloses a light emitting device comprising an electroluminescent device electrically connected to a semiconductor component which is a thin film transistor comprising gate electrode 104 and source/drain regions 105/107 (col. 1, lines 5-20; col. 4, line 45 to col. 5, line 9). Technically, in operation, the thin film transistor of Arai is turned on or off by applying to its gate electrode a signal having either a high or a low voltage. Such voltages are definitely predetermined.

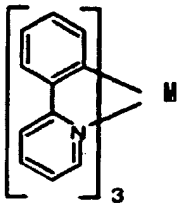
It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Forrest so that it would include a thin film transistor electrically connected to the electroluminescent element as that of Arai in order to control currents applied to the electroluminescent element (col. 1, lines 17-19 of Arai); hence, to control power applied across the electroluminescent element. Such modification would greatly improve the performance of the device of Forrest due to an ease in controlling the device.

Regarding claim 48, Forrest/Arai disclose the device wherein M is an element selected from the group consisting of nickel, cobalt and palladium. See col. 9, line 18 to col. 11, line 18; col. 17, line 11 to col. 19, line 19; and col. 20, lines 42-44 of Forrest.

Regarding claims 49-54, Forrest/Arai disclose the device comprising all claimed limitations. See col. 16, line 65 to col. 17, line 8 of Forrest.

Regarding claim 55, Forrest discloses a light emitting device comprising:

an electroluminescent element (col. 9, line 18 to col. 11 , line 18), wherein the electroluminescent element includes a thin film including a luminescent material expressed by a following formula:



wherein M represents an element belonging to group 8 to 10 of the periodic table (col. 9, line 18 to col. 11 , line 18; col. 17, line 11 to col. 19, line 19; and col. 20, lines 42-44).

Forrest is silent about a device comprising a transistor which electrically connected to the electroluminescent element, wherein signals each having one of predetermined two voltages are applied to a gate electrode of the transistor.

However, Arai discloses a light emitting device comprising an electroluminescent device electrically connected to a semiconductor component which is a thin film transistor comprising gate electrode 104 and source/drain regions 105/107 (col. 1, lines 5-20; col. 4, line 45 to col. 5, line 9). Technically, in operation, the thin film transistor of Arai is turned on or off by applying to its gate electrode a signal having either a high or a low voltage. Such voltages are definitely predetermined.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Forrest so that it would include a thin film transistor electrically connected to the electroluminescent element as that of Arai in order to control currents applied to the electroluminescent element (col. 1, lines 17-19 of

Arai); hence, to control power applied across the electroluminescent element. Such modification would greatly improve the performance of the device of Forrest due to an ease in controlling the device.

Regarding claim 56, Forrest/Arai disclose the device wherein M is an element selected from the group consisting of nickel, cobalt and palladium. See col. 9, line 18 to col. 11, line 18; col. 17, line 11 to col. 19, line 19; and col. 20, lines 42-44 of Forrest.

Regarding claims 57-62, Forrest/Arai disclose the device comprising all claimed limitations. See col. 16, line 65 to col. 17, line 8 of Forrest.

Regarding claim 63-65, Forrest/Arai is silent about methods for operating the semiconductor component. However, since this invention is about a device itself, not about method(s) for operating a device, therefore, "method of operating a device" limitation(s) would not have patentable weight on device claim(s). In addition, a device, such as the thin film transistor of Arai, can be operated in many different methods, depending on its application. Operating a transistor by time division method, or in association with a clock signal, is common and well known in the art, anyway.

Regarding claim 66, Forrest discloses a light emitting device comprising:

an electroluminescent element comprising a first electrode, a second electrode, and a luminescent material interposed between the first and the second electrodes (fig. 5, and col. 9, line 18 to col. 11, line 18);

wherein, in the luminescent material, electroluminescence is obtained by triplet excitation (col. 2, line 58 to col. 3, line 53; col. 5, lines 9-27: the ISC Agents convert all of the excitations/excitons into their triplet excitations/excitons, which do emit).

Forrest is silent about a transistor having a source region, a drain region and a gate electrode, wherein any one of the source region and the drain region is electrically connected to the first electrode, wherein signals each having one of predetermined two voltages are applied to the gate electrode.

However, Arai discloses a light emitting device comprising an electroluminescent device comprising a first electrode 113, a second electrode 115 electrically connected to a semiconductor component which is a thin film transistor having a gate electrode 104 and source/drain regions 105/107, wherein the drain region 107 is electrically connected to the first electrode 113 (figs. 1-2; and col. 1, lines 5-20; col. 4, line 45 to col. 5, line 9). Technically, in operation, the thin film transistor of Arai is turned on or off by applying to its gate electrode a signal having either a high or a low voltage. Such voltages are definitely predetermined.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Forrest so that it would include a thin film transistor electrically connected to the first electrode of the electroluminescent element as that of Arai in order to control currents applied to the electroluminescent element (col. 1, lines 17-19 of Arai); hence, to control power applied across the electroluminescent element. Such modification would greatly improve the performance of the device of Forrest due to an ease in controlling the device.

Regarding claims 67-72, Forrest/Arai disclose the device comprising all claimed limitations. See col. 16, line 65 to col. 17, line 8 of Forrest.

Regarding claim 73, Forrest discloses a light emitting device comprising:

an electroluminescent element comprising a first electrode, a second electrode, and a luminescent material interposed between the first and the second electrodes (fig. 5, and col. 9, line 18 to col. 11, line 18);

wherein, in the luminescent material, electroluminescence is obtained by triplet excitation (col. 2, line 58 to col. 3, line 53; col. 5, lines 9-27: the ISC Agents convert all of the excitations/excitons into their triplet excitations/excitons, which do emit).

Forrest is silent about a p-channel transistor having a source region, a drain region and a gate electrode, wherein any one of the source region and the drain region

is electrically connected to the first electrode, wherein signals each having one of predetermined two voltages are applied to the gate electrode.

However, Arai discloses a light emitting device comprising an electroluminescent device comprising a first electrode 113, a second electrode 115 electrically connected to a semiconductor component which is a p-channel thin film transistor having a gate electrode 104 and source/drain regions 105/107, wherein the drain region 107 is electrically connected to the first electrode 113 (figs. 1-2; and col. 1, lines 5-20; col. 4, line 45 to col. 5, line 9). Technically, in operation, the thin film transistor of Arai is turned on or off by applying to its gate electrode a signal having either a high or a low voltage. Such voltages are definitely predetermined.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Forrest so that it would include a thin film transistor electrically connected to the first electrode of the electroluminescent element as that of Arai in order to control currents applied to the electroluminescent element (col. 1, lines 17-19 of Arai); hence, to control power applied across the electroluminescent element. Such modification would greatly improve the performance of the device of Forrest due to an ease in controlling the device.

Regarding claim 74, Forrest/Arai disclose the device wherein the first electrode is an anode, and the second electrode is a cathode. See fig. 5, and col. 5, line 65 to col. 6, line 8 of Forrest.

Regarding claims 75-80, Forrest/Arai disclose the device comprising all claimed limitations. See col. 16, line 65 to col. 17, line 8 of Forrest.

Regarding claim 81, Forrest discloses a light emitting device comprising:

an electroluminescent element comprising an anode, a cathode, and a luminescent material interposed between the anode and the cathode (fig. 5, and col. 9, line 18 to col. 11, line 18);

wherein, in the luminescent material, electroluminescence is obtained by triplet excitation (col. 2, line 58 to col. 3, line 53; col. 5, lines 9-27: the ISC Agents convert all of the excitations/excitons into their triplet excitations/excitons, which do emit).

Forrest is silent about a transistor having a source region, a drain region and a gate electrode, wherein any one of the source region and the drain region is electrically connected to the first electrode, wherein signals each having one of predetermined two voltages are applied to the gate electrode.

However, Arai discloses a light emitting device comprising an electroluminescent

device comprising a first electrode 113, a second electrode 115 electrically connected to a semiconductor component which is a thin film transistor having a gate electrode 104 and source/drain regions 105/107, wherein the drain region 107 is electrically connected to the first electrode 113 (figs. 1-2; and col. 1, lines 5-20; col. 4, line 45 to col. 5, line 9). Technically, in operation, the thin film transistor of Arai is turned on or off by applying to its gate electrode a signal having either a high or a low voltage. Such voltages are definitely predetermined.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Forrest so that it would include a thin film transistor electrically connected to the first electrode of the electroluminescent element as that of Arai in order to control currents applied to the electroluminescent element (col. 1, lines 17-19 of Arai); hence, to control power applied across the electroluminescent element. Such modification would greatly improve the performance of the device of Forrest due to an ease in controlling the device.

Regarding claim 82, Forrest/Arai disclose the device wherein the transistor is a p-channel transistor. See col. 4, lines 40-53 of Arai.

Regarding claim 83-88, Forrest/Arai disclose the device comprising all claimed limitations. See col. 16, line 65 to col. 17, line 8 of Forrest.

Regarding claim 89, Forrest discloses a light emitting device comprising:

an electroluminescent element comprising a first electrode, a second electrode, and a luminescent material interposed between the anode and the cathode (fig. 5, and col. 9, line 18 to col. 11, line 18);

wherein, in the luminescent material, electroluminescence is obtained by triplet excitation (col. 2, line 58 to col. 3, line 53; col. 5, lines 9-27: the ISC Agents convert all of the excitations/excitons into their triplet excitations/excitons, which do emit).

Forrest is silent about a transistor having a source region, a drain region and a gate electrode, wherein an LDD region is not particularly provided between the source region and the drain region; and wherein any one of the source region and the drain region is electrically connected to the first electrode, wherein signals each having one of predetermined two voltages are applied to the gate electrode.

However, Arai discloses a light emitting device comprising an electroluminescent device comprising a first electrode 113, a second electrode 115 electrically connected to a semiconductor component which is a thin film transistor having a gate electrode 104 and source/drain regions 105/107, wherein an LDD region is not particularly provided between the source region and the drain region; and wherein the drain region 107 is electrically connected to the first electrode 113 (figs. 1-2; and col. 1, lines 5-20; col. 4, line 45 to col. 5, line 9). Technically, in operation, the thin film transistor of Arai is turned

on or off by applying to its gate electrode a signal having either a high or a low voltage. Such voltages are definitely predetermined.

It would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the invention of Forrest so that it would include a thin film transistor electrically connected to the first electrode of the electroluminescent element as that of Arai in order to control currents applied to the electroluminescent element (col. 1, lines 17-19 of Arai); hence, to control power applied across the electroluminescent element. Such modification would greatly improve the performance of the device of Forrest due to an ease in controlling the device.

Regarding claim 90, Forrest/Arai disclose the device wherein the transistor is a thin film transistor. See col. 4, lines 40-53 of Arai.

Regarding claim 91-95, Forrest/Arai disclose the device comprising all claimed limitations. See col. 16, line 65 to col. 17, line 8 of Forrest.

Conclusion

6. A shortened statutory period for response to this action is set to expire 3 (three) months and 0 (zero) day from the day of this letter. Failure to respond within the period for response will cause the application to become abandoned (see M.P.E.P 710.02(b)).

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Dao H. Nguyen whose telephone number is (571)272-1791. The examiner can normally be reached on Monday-Friday, 9:00 AM – 6:00 PM. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Nelms can be reached on (571)272-1787. The fax numbers for all communication(s) is 571-273-8300.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (571)272-1625.

David Nelms
Supervisory Patent Examiner
Technology Center 2800

Dao H. Nguyen
Art Unit 2818
October 31, 2005